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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/874,147 | 06/05/2001 | Michael J. Siwinski | 82686THC | 6252 |

7590 06/04/2004

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| EXAMINER | |
|---|---|
| JORGENSEN, LELAND R | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2675 | 7 |

DATE MAILED: 06/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/874,147 | SIWINSKI, MICHAEL J. | |
| | Examiner | Art Unit | |
| | Leland R. Jorgensen | 2675 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *17 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1 - 10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 - 10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1, 4 - 6, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takashimizu, JP 410091088 A (See Thomson-Derwent Translation JP10-91088A) in view of Hill, Jr., USPN 5,790,096 and of Kubes et al., USPN 6,035,180.

**Claims 1 and 6**

Takashimizu teaches a color electroluminescent display, comprising a plurality of different colored light emitting elements. Takashimizu teaches displaying a monochrome image using only one color to save power. Takashimizu, pp. 4, 8-9, 33- 35, and 37; and figures 2, 3, 8, and 13 – 16.

Although inherent to the circuit and function described, Takashimizu does not specifically teach a digital image processing circuit for converting at least a portion of a color digital image to be displayed on the display to a monochrome image.

Hill teaches a digital image processing circuit [color to monochrome reduction device 21] for converting at least a portion of a color digital image to be displayed on the display to a monochrome image. Hill, col. 2, line 58 – col. 3, line 8; and col. 7, lines 10 – 40; figure 1; and table I. Hill also shows a weighting factors for each color, thus implying that each color emitting element has a different light emitting efficiency. Hill, col. 7, lines 7 – 40; figure 1; and table I.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of the digital image processing circuit as taught by Hill with the electroluminescent display as taught by Takashimizu to implement the monochrome image described by Takashimizu. Hill invites such combination by teaching,

> In a further aspect of the invention, full color images may be reduced to a plural bit grey scale for display on a monochrome screen. Further, monochrome to monochrome, monochrome to color, and color to color image processing also is provided.

Hill, col. 2, lines 58 – 62.

Although both Hill and Takashimizu teach electroluminescent displays, neither Hill nor Takashimizu teach that the color display is an organic electroluminescent display.

Kubes specifically teaches a color organic electroluminescent display [display area 10]. Kubes, col. 2, lines 48 – 52; col. 7, line 66 – col. 8, line 41; and figure 1. Kubes teaches that organic electroluminescence have a plurality of different light emitting elements each having different light emitting efficiencies. Kubes teaches that one colored lighted emitting element, yellow/green, has the highest light emitting efficiency. Kubes, col. 9, lines 48 – 60; col. 10, lines 28 – 32; and figure 12.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the color organic electroluminescent elements as taught by Kubes with the color electroluminescent display as taught by Hill. Kubes invites such combination by teaching,

> By way of general summary, the basic principles of operation of the organic electroluminescent display incorporated into the present invention are somewhat related to those used in liquid crystal displays (LCDs). An organic electroluminescent layer such as a light emitting polymer layer or layers (LEPs) or Alq are sandwiched between two conductive layers comprising Indium Tin Oxide (ITO) (or other suitable material) and Aluminum (Al) (or other suitable material) that are etched, usually via a laser, or stereo lithography, into conductive

> elongate conductive strips comprising "wires." Each of the etched "wires" on these respective areas run perpendicular to one another. At the crossing point of the "wires" between the top ITO (or other suitable material) layer and the bottom Al (or other suitable material) layer, a pixel is formed. A particular pixel is lighted by voltage when the appropriate ITO (or other suitable material) "wire" and the corresponding "Al" (or other suitable material) are combined in a circuit. The current going through the crosspoint between the two wires excites the LEP or Alq layer and light is emitted. In current technology, organic electroluminescent materials, such as LEPs and Alq have been developed that exhibit the colors green, yellow, blue and red. The color green/yellow has proven to be the most efficient color so far. The light emitting organic electroluminescent material display operates at a relatively low voltage and a reasonable current and give light levels that are comparable to both light emitting diodes (LEDs) and liquid crystal displays (LCDs).

Kubes, col. 10, lines 9 – 36.

Although neither Takashimizu, Hill, nor Kubes specifically teach using the light emitting element having the highest light emitting efficiency, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the element having the highest light emitting efficiency, specifically the organic EL green/yellow as taught by Kubes, to produce a power saving monochrome display having the greatest efficiency.

**Claims 4 and 9**

Both Hill and Kubes teach that the display has red, green, and blue light emitting elements and that the green light emitting elements have the highest light emitting efficiency. Hill, Jr., col. 2, line 58 – col. 3, line 8; col. 7, lines 10 – 40. Kubes, col. 10, lines 28 – 32.

**Claims 5 and 10**

Hill teaches that the digital image processing circuit converts a color digital image to a monochrome digital image by combining 5/16, 9/16, and 2/16 of the red, green and blue color signals, respectively. Hill, Jr., col. 7, lines 20 – 34; and table I.

3. Claims 2 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takashimizu, Hill, Jr. et al., and Kubes et al. and as applied to claims 1 or 6 above, and further in view of Shimoda, USPN 5,944,829.

**Claims 2 and 7**

Neither Takashimizu, Hill, nor Kubes teach a battery and the power saving mode.

Shimoda teaches a laptop computer that is in battery powered device. It is inherent that a laptop computer have a display. Shimoda teaches a power monitor [power information module 30] for monitoring the power level of the battery 22, and a control circuit [CPU 12] connected to power monitor for converting the display [coupled through input/output device 14] to a power saving mode of operation [operating mode 26, 27, or 28] when the battery power reaches a predetermined level. Shimoda, col. 3, lines 41 – col. 4, line 42; col. 6, lines 4 – 11; and figures 1 and 3.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the power saving mode as taught by Shimoda with the color organic electroluminescent display as taught by Hill, Jr., and Kubes. Shimoda invites such combination by teaching,

> Many modern computer systems are implemented in light weight, portable designs that enable a user to carry the computer wherever the user may travel. Such portable computers are called "laptops" or "notebooks" (hereinafter generally referred to as a laptop). Laptops typically include alternate sources of power so that the user may either plug the laptop into an electrical wall outlet or use a battery mounted within the laptop. Battery life is an important design characteristic for laptop computers since users desire a maximum amount of time to use the laptop while away from an environment affording access to an electrical outlet.

Shimoda, col. 1, lines 14 – 24. Shimoda adds,

> The present invention provides a new and improved power conservation scheme for use in connection with user applications. Generally, each user application is implemented with a power conservation software module that can include a user interface. The power conservation module stores default preferences or user designated preferences, via the user interface, regarding battery life, monitors power characteristics of the laptop, for example via communication with the APM, and operates the user application in accordance with the default or user preferences and the monitored power characteristics.

Shimoda, col. 2, lines 48 – 58. Shimoda concludes,

> In this manner, according to the present invention, information acquired by a utility such as APM is made available for use in setting actual operating characteristics of a user application in relation to the state of a battery being used to power a portable computer.

Shimoda, col. 6, lines 30 – 34.

4. Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takashimizu, Hill, Jr., et al., and Kubes et al. as applied to claims 1 or 6 above, and further in view of Nelson et al., USPN 6,311,282 B1.

**Claim 3 and 8**

Neither Takashimizu, Hill, nor Kubes teach a battery saving mode switch.

Nelson teaches a battery saving mode switch [Suspend/Resume button]. Nelson, col. 1, lines 11 – 14; and col. 10, lines 12 – 16.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the battery saving mode switch as taught by Nelson with the color organic electroluminescent display as taught by Hill, Jr., and Kubes. Nelson invites such combination by teaching,

> Portable computers are well known, as are personal "communicators" of the type exemplified by the Motorola Envoy. Such portable computing devices

> are invariably battery powered. Since presently available batteries have very limited storage capabilities, it is important that such portable computing devices (both computers and communicators) limit their power draw. Therefore there is known a wide range of techniques for conserving power in such battery powered devices. These power conservation methods include shutting down portions (various subsystems) of the computer when not in use, as well as putting the computer CPU (the main processor) to "sleep" when its capabilities are not being used.

Nelson, col. 1, lines 16 – 29.

***Response to Arguments***

5. Applicant's arguments with respect to claims 1 - 10 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gettemy et al., USPN 6,603,469 B1, teaches a changing a multicolor display to monochrome to save power. Gettemy, col. 2, lines 10 – 36. Gettemy teaches that the display device may be a field emissive device or any other display suitable for creating graphic images. Gettemy, col. 6, lines 56 – 63. "It is appreciated that any multi-mode display device can be used by the present invention where color display consumes more energy than the monochrome device." Gettemy, col. 9, lines 26 – 29.

Shibata et al., USPN 5,774,257, teaches, "Further, a CRT and a liquid crystal each having a colored screen has the number of pixels three times as that of a monochrome, has a complex structure, consumes much electric power, and costs a lot." Shibata, col. 1, lines 25 – 28.

Hunter, Jr. et al., USPN 5,514,618, teaches, "Monochrome active matrix LC displays benefit from a much lower power consumption than color, saving on battery size and weight." Hunter, col. 2, lines 44 – 46.

Sekiguchi, USPN 6,429,840 B1, teaches that the monochrome LCD display uses less power than a color display.

Jacobsen et al., USPN 5871,164, teaches, "Color LCDs require more power than monochrome displays." Jacobsen, col. 1, lines 28 – 29.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leland Jorgensen whose telephone number is 703-305-2650. The examiner can normally be reached on Monday through Friday, 7:00 a.m. through 3:30 p.m..

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks
Washington, D.C. 20231

**or faxed to:**

**(703) 872-9306**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office, telephone number (703) 306-0377.

lrj

DENNIS-DOON CHOW
PRIMARY EXAMINER